

## Quiet Lane Tributary Stabilization

St. Louis County, Missouri

The Quiet Lane project site is located along a 300-foot stretch of tributary to Fee Fee Creek, in unincorporated St. Louis County. Insufficient energy management at the downstream end of an existing riprap-lined channel resulted in severe channel erosion. The left bank had slumped into the channel, generating a large volume of sediment and woody debris, while gabion basket bank armor was deteriorating long the opposite bank.



A large part of the problem is attributable to a locally steep channel grade. A dramatic drop in channel bed elevation is evident at a 7-foot high headcut, advancing up a smaller tributary emptying into the project reach.

Intuition & Logic was hired by St. Louis County to design repairs to the bank erosion, including a section of failed gabion wall. To accommodate the grade change and limit stream energy, we applied alpine stream morphology techniques by creating a series of rock-lined step pools. The steps dissipate energy and focus scouring flows into the armored pools and away from the banks. The failed gabion wall along the right descending bank was replaced with a rock-stabilized slope, and the existing headcut was stabilized with a rock grade control structure. Adjacent areas were planted with native Missouri riparian plants. The interventions dramatically improved water quality downstream by reducing the sediment load that had been generated by bed and bank erosion.

